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| 09/908,951 | 07/19/2001 | Masayuki Shinkai | 791_157 | 1928 |

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EXAMINER

SAVAGE, JASON L

ART UNIT PAPER NUMBER

1775

DATE MAILED: 01/16/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/908,951

Applicant(s)

SHINKAI

Examiner

Jason L. Savage

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 10-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-9 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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Election/Restriction

1. Claims 10-27 have withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in Paper No. 6. Applicant argues that the restriction is improper since search and examination of the entire application could be made without serious burden. However, a search of the non-elected claims would provide a burden to the Examiner since a search in class 228, subclasses 122.1, 123.1, 124.5, 198, 199, and 228 which would not be required for the presently elected claims. Rejoinder of the claims will be considered upon indication of allowable subject matter with regard to the method claims.

Drawings

2. It was noted that in the specification on page 9 that Applicant described figures 4-7 as 'conventional'. It is unclear if Applicant intends that these figures are considered Prior Art. If they are indeed Prior art, they should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.0

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: Reference numbers **20**, **21**, **22a**, **24**, and **25** shown in figures 5-7 are not described in the specification. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference

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sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance

Specification

4. The disclosure is objected to because of the following informalities:

On page 22, in examples 3 and 6, Applicant states that the soldering temperature is 11,001°C. It is the position of the Examiner that this is a typographical error and that the temperature should actually be 1,100°C. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2 and 5-9 are rejected under 35 U.S.C. 102() as being by anticipated by GB'811 (GB 979,811).

GB'811 teaches a composite member formed by bonding of a ceramic part to a metallic part by disposing a first and second metallic layer between the two parts (p. 2, col 1, ln. 37-65). The first layer is a solder metal which may be a gold alloy and the second layer may be an active metal foil made of zirconium which is then subjected to heating to for a eutectic mixture (p. 2,

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col. 2, ln. 116-123). Although GB'811 does not cite that the bonding that occurs is solid phase bonding, it would have inherently been a solid phase bond since GB'811 uses the same materials which are claimed by Applicant.

Regarding claim 2, GB'811 teaches that the solder may be a gold-silver alloy (p. 4, col. 2, ln. 103-112).

Regarding claims 5 and 8 GB'811 teaches that the ceramic material may be alumina and the active metal foil may be Ti or Zr (p. 2, ln. 87-100).

Regarding claims 6 and 7, GB'811 teaches that the metal part may be selected from the iron-nickel-cobalt group (p. 4, col. 1, ln. 13-15).

Regarding claim 9, the limitations that the composite 'is used as a susceptor for disposing a semiconductor wafer' is a statement of intended use. Statements of intended use are not considered patentably distinguishing limitations. See Ex parte Masham 2 U.S.P.Q.2d 1647, 1648. In re Thuau 135 F.2d 344, 47 U.S.P.Q. 324. Application of Hack, 245 F.2d.246, 114 U.S.P.Q. 161. Since the composite of GB'811 anticipates the claimed product, it would be just as capable of being used as a susceptor.

7. Claims 1, 6-7 and 9 are rejected under 35 U.S.C. 102() as being by anticipated by Sato et al. (US 5,325,012).

Sato teaches a composite member which comprises a ceramic base and a metallic member which are bonded to each other by an active metal and a solder material (col. 2, ln. 35-53). The

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active metal may be Ti, Zr, Hf or Nb and the Solder may be select from metals such as Au and Ag (col. 2, ln. 35-53). Regarding the limitation that the composite is bonded together through solid phase bonding, it would have inherently been a solid phase bond since Sato uses the same materials which are claimed by Applicant.

Regarding claims 6 and 7, GB'811 teaches that the metal part may be mild steel (col. 4, ln. 16-20).

Regarding claim 9, the limitations that the composite 'is used as a susceptor for disposing a semiconductor wafer' is a statement of intended use. Statements of intended use are not considered patentably distinguishing limitations. See Ex parte Masham 2 U.S.P.Q.2d 1647, 1648. In re Thuau 135 F.2d 344, 47 U.S.P.Q. 324. Application of Hack, 245 F.2d.246, 114 U.S.P.Q. 161. Since the composite of Sato anticipates the claimed product, it would be just as capable of being used as a susceptor.

8. Claims 1, 6-7 and 9 are rejected under 35 U.S.C. 102() as being by anticipated by Maroni (US 5,079,223).

Maroni teaches a composite member comprising a ceramic base bonded to a metallic member which are bonded to each other by an active metal bonding agent and a solder material comprising silver or gold (col. 2, ln. 58-68). Maroni teaches that the active metal bonding agent and the solder react to for a intermediate phase or solid solution (col. 3, ln. 15-17).

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Regarding claim 8, Maroni teaches that the active metal bonding agent may be a Ti (col. 3, ln. 18-20) and may be in the form of a foil (col. 3, ln. 43-46).

Regarding claim 9, the limitations that the composite 'is used as a susceptor for disposing a semiconductor wafer' is a statement of intended use. Statements of intended use are not considered patentably distinguishing limitations. See Ex parte Masham 2 U.S.P.Q.2d 1647, 1648. In re Thuau 135 F.2d 344, 47 U.S.P.Q. 324. Application of Hack, 245 F.2d.246, 114 U.S.P.Q. 161. Since the composite of Maroni anticipates the claimed product, it would be just as capable of being used as a susceptor.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over GB'811 (GB 979,811).

GB'811 teaches what is set forth above however it is silent to the exact content of Ag in the Au-Ag solder alloy. However, Applicant the limitation of the Ag content being between 0.5-80% encompasses such a broad range that many of the conventional Au-Ag solder compositions would fall within the claimed range. It would have been obvious to one of ordinary skill in the

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art at the time of the invention to have used a conventional Au-Ag solder composition for the solder in the composite of GB'811.

Allowable Subject Matter

11. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: The prior art teaches a composite member having a ceramic base bonded to a metallic member by a bonding layer composed of a Au solder and an active metal foil. The prior art also teaches composite members comprising ceramic bases bonded to metallic members having electrical conductors comprising the claimed materials. However, the prior art does not teach or suggest the claimed composite structure having both the claimed bonding layer and the claimed electrical conductor.

13. Any inquiry to this communication or earlier communications from the Examiner should be directed to Jason Savage, whose telephone number is (703)305-0549. The Examiner can normally be reached Monday to Friday from 6:30 AM to 4:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Deborah Jones, can be reached on (703)308-3822.

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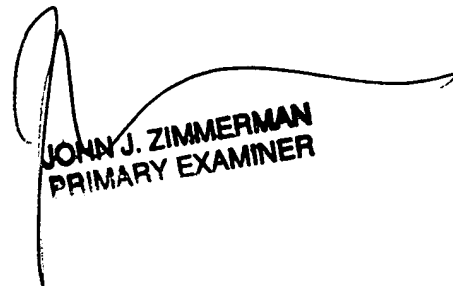
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Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703)308-2351.



Jason Savage

1-9-03



JOHN J. ZIMMERMAN
PRIMARY EXAMINER